



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
OSB2000-0232

September 14, 2000

Lawrence Evans
U.S. Army Corps of Engineers
P.O. Box 2946
Portland, OR 97208-2946

Re: Biological Opinion for the Antelope Creek Scour Protection Project, Jackson County,
Oregon (Corp No.: 1997-00403)

Dear Mr. Evans:

Enclosed is a biological opinion prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) on the Antelope Creek Scour Protection Project in Jackson County, Oregon. The NMFS concludes in this biological opinion that the proposed action is not likely to jeopardize the subject species or destroy or adversely modify critical habitat. Pursuant to section 7 of the ESA, NMFS included reasonable and prudent measures with non-discretionary terms and conditions that NMFS believes are necessary and appropriate to minimize the potential for incidental take associated with this project.

Questions regarding this letter should be directed to Nancy Munn of my staff at (503) 231-6269.

Sincerely,

William Stelle, Jr.
Regional Administrator

cc: Rose Owens - ODOT Biology Team Leader
Jim Collins - ODOT Biologist (encl.)
Julie Bunnell - ODOT Permits
Randy Reeve - ODFW (encl.)



Endangered Species Act - Section 7
Consultation

BIOLOGICAL OPINION

Antelope Creek Bridge Scour Project
Oregon Route 138
Jackson County, Oregon

Agency: U.S. Army Corps of Engineers

Consultation Conducted By: National Marine Fisheries Service,
Northwest Region

Date Issued: September 14, 2000

Refer to: OSB2000-0232

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I. BACKGROUND

On August 3, 2000, the National Marine Fisheries Service (NMFS) received a request from the U.S. Army Corps of Engineers (COE) for Endangered Species Act (ESA) section 7 formal consultation for the Antelope Creek bridge scour project (Corps No.: 1997-00403). The Dutton Road-Linn Road construction project was completed in the fall of 1999. This project included replacement of the Highway 62 bridge at Antelope Creek near Eagle Point in Jackson County, Oregon. High flows during the winter of 1999-2000 created extensive scour on the Antelope Creek bridge. The scour has put the integrity of the bridge at risk and exposed the City of Eagle Point's water main and a gas line. This project applicant proposes to repair the bridge scour and protect the exposed water and gas lines. The project applicant is the Oregon Department of Transportation (ODOT). The ODOT has designed the project. The project is funded from the ODOT Maintenance budget, which uses state tax dollars. The federal nexus for the ESA consultation is the COE fill permit.

Antelope Creek is a tributary of Little Butte Creek, which flows into the Rogue River. The COE/ODOT is proposing to place 1383 cubic yards of riprap under the southwest and northeast quadrants of the bridge. The work area will be isolated from the actively flowing channel. The water line will be encased in concrete and the high-pressure gas line will be relocated onto the bridge. As mitigation, the applicant is proposing to create structural heterogeneity along the base of the revetments and plant trees and shrubs on-site and off-site.

The COE/ODOT determined that the proposed action was likely to adversely affect the Southern Oregon / Northern California (SONC) coho salmon (*Oncorhynchus kisutch*) which are present in the project area. SONC coho salmon was listed as threatened under the ESA on May 6, 1997 (62 FR 24588) and critical habitat was designated on May 5, 1999 (64 FR 24049). The effects determination was made using the methods described in *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996).

This biological opinion (Opinion) is based on the information presented in the biological assessment (BA) and the result of the consultation process. The consultation process has involved a site visit on July 26, 2000, and correspondence and communications to obtain additional information and clarify the BA. As appropriate, modifications to the proposal to reduce impacts to the indicated species were discussed and enacted. This has included reducing the amount of riprap proposed, adding boulder clusters for structural heterogeneity, and providing plantings on and off-site.

The objective of this Opinion is to determine whether the action to excavate the stream bank and place riprap is likely to jeopardize the continued existence of the SONC coho salmon, or destroy or adversely modify critical habitat.

II. PROPOSED ACTION

The project is located at milepoint 8.56 on the Crater Lake Highway (Hwy 62) in Jackson County. The Antelope Creek bridge was constructed last year. However, the riprap placed at that time was not completed according to the design (no toe trench was used and the riprap was undersized) and has since failed. This project proposes to place the riprap according to the original design. The scour protection is proposed to be completed by ODOT during September 2000. The current in-water work period for Antelope Creek is June 15 through September 15. A request for an in-water extension is currently under discussion with Oregon Department of Fish and Wildlife (ODFW).

Prior to the placement of riprap, a cofferdam (or similar structure) will be placed in Antelope Creek to isolate the in-water work from the actively flowing channel. Access to site will be limited to the southwest and northeast quadrants of the bridge. The existing riprap will be removed and the abutment slopes will be graded from the end panels through the bridge opening to achieve a uniform slope. The slope will have a maximum steepness of 1.5 horizontal to 1 vertical. The graded area will extend vertically from the base of the bridge end panels to the lowest point of the main channel. This includes the area below the existing water surface. All material that is removed will be taken off site and disposed of away from any waterbodies. Approximately 3000 cubic yards of material will be removed. Toe trenches will be excavated to a depth of about 1.5 yards. The toe trenches will wrap around from end panel to end panel through the bridge opening. Geotextile fabric will be placed on the entire prepared surface including the toe trench area. Finally, approximately 1383 cubic yards of class 200 riprap will then be placed along the slopes.

A series of boulder clusters will be placed along the toe of the riprap revetment to provide instream structural diversity. Four boulder clusters will be placed along the length of the revetment on both sides of the stream. The boulder clusters will be composed of three-foot diameter rocks. They will provide structural heterogeneity for adult and juvenile salmonids by breaking up the flow along the revetment and providing potential refugia.

An existing water line that extends across the slope will require protection from the equipment and riprap placed. The water line will be encased in a 0.2 yard thick box formed of concrete to extend from the existing deadman in the creek to 3.8 yards into the existing embankment. The existing high-pressure gas line that extends across the creek approximately 6-9 yards upstream of the water line will be relocated onto the bridge.

Willow, alders and cottonwoods were planted in 1999 as mitigation for impacts during the bridge replacement project at this site. Some of these plants will be removed as part of this scour protection project; the removal is required to provide access to the site and for the placement of riprap. To compensate for this loss, willow fascines, black cottonwood, bigleaf

maple, alder and ponderosa pine will be planted on-site. These plants will be planted along both sides of Antelope Creek covering an area of approximately 1,302 square feet.

Off-site mitigation is also proposed to compensate for the loss of riparian function in the basin. The proposed location is at the ODOT Central Point maintenance office along the east bank of Bear Creek, a tributary to the Rogue River with significant water quality problems. A planting plan has been proposed that includes the following elements:

- S Willow fascines and stakes will be planted from the edge of the creek at low water to the two-year floodplain, covering approximately 3,224 square feet.
- S A second zone from the two-year floodplain will be planted with saskatoon serviceberry, nootka rose, snowberry, and red-osier dogwood. The vegetation in this zone will be spaced in 15 rows, totaling 1,235 shrubs and covering 9,994 square feet.
- S The uppermost zone will be 4,836 square feet with five rows of 52 trees each, totaling 260 trees. Species planted will include bigleaf maple, ponderosa pine and black cottonwood.
- S Exotic plant species will be removed by hand (no herbicides will be used within 300 feet of Bear Creek). Himalayan blackberries will be removed from the site throughout the three-year establishment period.
- S Plantings will be irrigated to ensure a high survival rate.

The contractor will use sediment containment procedures according to Section 170 (Legal Relations and Responsibilities) in ODOT's "Standard Specifications for Highway Construction" (1996) and Section 280 (Erosion and Sediment Control) of the "Supplemental Standard Specifications" (1998).

III. BIOLOGICAL INFORMATION AND CRITICAL HABITAT

The southern Oregon/northern California (SONC) coho salmon Evolutionarily Significant Unit (ESU) was listed as threatened under the ESA by the NMFS on May 6, 1997 (62 FR 24588). Biological information on SONC coho salmon may be found in Weitkamp et al. (1995). Critical habitat was designated for the SONC coho salmon on May 5, 1999 (64 FR 24049). Critical habitat for SONC coho salmon consists of all waterways below naturally impassable barriers including the project area. The adjacent riparian zone is also included in the designation. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient or chemical regulation, streambank stability, and input of large woody debris or organic matter. Interim protective regulations for SONC coho were issued under section 4(d) of the ESA on July 18, 1997 (62 FR 38479).

IV. EVALUATING PROPOSED ACTIONS

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the: (1) Definition of the biological requirements and current status of the listed species; and (2) evaluation of the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmonid's life stages that occur beyond the action area. If NMFS finds that the action is likely to jeopardize the listed species, NMFS must identify reasonable and prudent alternatives for the action.

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. The NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. The NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. The NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will destroy or adversely modify critical habitat, it must identify any reasonable and prudent alternatives available.

For the proposed action, NMFS' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NMFS' critical habitat analysis considers the extent to which the proposed action impairs the function of essential biological elements necessary for juvenile and adult migration, and juvenile rearing of the SONC coho salmon.

A. Biological Requirements

The first step in the methods NMFS uses for applying the ESA section 7(a)(2) to listed salmon is to define the species' biological requirements that are most relevant to each consultation. NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NMFS starts with the determinations made in its decision to list SONC coho salmon for ESA protection and also considers new data available that is relevant to the determination (Weitkamp 1995).

The relevant biological requirements are those necessary for SONC coho salmon to survive and recover to naturally reproducing population levels at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful migration, spawning, holding, and rearing. The current status of the SONC coho salmon, based upon their risk of extinction, has not significantly improved since the species was listed and their status has probably improved since the species was listed though, in some cases, their status may be uncertain.

B. Environmental Baseline

The current range-wide status of the identified ESU may be found in Weitkamp et al. (1995). The identified action will occur within the range of SONC coho salmon. The defined action area is the area that is directly and indirectly affected by the action. The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect effects may occur throughout the watershed where actions described in this Opinion lead to additional activities or affect ecological functions contributing to stream degradation. As such, the action area for the proposed activities include the immediate watershed containing the bridge site and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term. For the purposes of this Opinion, the action area is defined as the streambed and streambank of Antelope Creek extending upstream to the edge of disturbance, and extending downstream to the confluence with Little Butte Creek, located approximately 1.2 miles downstream of the project site. Other areas of Antelope Creek and the Rogue River watershed are not expected to be directly or indirectly impacted.

Antelope Creek originates on the western slope of the Cascade Mountains province and flows in a northwesterly direction through the Rogue Valley until it enters Little Butte Creek near White City, Oregon. Land use in the watershed includes private timberlands, private agriculture land, rural residential and Bureau of Land Management land. Land use at the project site is rural residential.

Antelope Creek support runs of coho and chinook salmon, steelhead, and cutthroat trout. Due to the small size of the stream, chinook salmon distribution is limited to the lower mile of Antelope Creek (downstream of the project site). According to recent information from ODFW, coho salmon are present at the project site.

Antelope Creek from the headwaters to the mouth is listed on the Oregon Department of Environmental Quality 303(d) List of Water Quality Limited Bodies for summer water temperatures.

Based on the best available information on the current status of SONC coho salmon range-wide; the population status, trends, and genetics; and the poor environmental baseline conditions within the action area, NMFS concludes that the biological requirements of the identified ESU within the action area are not currently being met. River basins have degraded habitat resulting from agricultural and forestry practices, water diversions, urbanization, and mining. The following habitat indicators are either at risk or not properly functioning within the action area: temperature, turbidity/sediment, chemical contamination/nutrients, substrate, large woody debris, off-channel habitat, pool frequency and quality, refugia, streambank condition, floodplain connectivity, peak/base flows, and disturbance history. Actions that do not maintain or work to restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of SONC coho salmon.

V. ANALYSIS OF EFFECTS

A. Effects of Proposed Action

The effects determination in this Opinion was made using a method for evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them. This process is described in the document *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996). The effects of actions are expressed in terms of the expected effect - restore, maintain, or degrade - on aquatic habitat factors in the project area.

This project has the potential to result in the direct take (either death or displacement) of juvenile coho salmon rearing within the project area during the in-water work, including the excavation of the toe trench and the placement of riprap. The extent of the risk will be reduced by the construction of a cofferdam (or similar structure) to isolate the work area from the active channel. The ODFW will be present on site during the construction of the cofferdam to remove any fish trapped within the enclosure.

Localized increases in sedimentation will result from the excavation of the toe trench and the grading of the streambank. There is a possibility that some of this work will require machinery to work within the wetted channel. Again, the use of a cofferdam and sediment containment devices will minimize the spatial and temporal extent of the turbidity plume downstream. Increased turbidity will displace fish using this reach during the in-water work until all sediment sources are stabilized. This is expected to be a temporary impact.

There will be a direct loss of 1,522 square yards of habitat due to the placement of riprap. Of this, 912 square yards is lost riparian habitat, and 610 square yards is lost instream habitat.

Vegetation that will be removed include willow, alder and cottonwood. To accomplish this project, access will be required from the southwest and northeast corners of the bridge. To bring equipment to these corners of the bridge, trees and shrubs that were planted as mitigation for the bridge replacement in 1999 will be removed. To compensate for this loss, approximately forty willows, alders and cottonwoods will be planted on-site, and additional trees and shrubs will be planted off-site.

The soil stabilization and planting activities will increase the likelihood of a return to riparian function at the site. The disturbed riparian area is all within the critical habitat for SONC coho salmon. It will take at least five years of re-growth before function begins to return, and substantially more time before full riparian function returns. During the recovery period, increased sediment, water temperatures, and runoff are likely at a reach level. At a sub-basin level (Antelope Creek), these impacts are probably not quantifiable.

For the proposed action, the NMFS expects that the effects will tend to maintain or restore each of the habitat elements over the long term, greater than five years, based on the proposed plantings at the site. In the short term, a temporary increase in sediment entrainment and turbidity, and disturbance of instream and riparian habitat is expected. Fish may be killed, or more likely, temporarily displaced by the riprap placement along Antelope Creek. The potential effects from the sum total of proposed actions including habitat enhancement activities are expected to maintain the function of coho salmon habitat condition.

B. Effects on Critical Habitat

NMFS designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. Critical habitat for SONC coho salmon consists of all waterways below naturally impassable barriers including the project area. The adjacent riparian zone is also included in the designation. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient/chemical regulation, streambank stability, and input of large woody debris/ organic matter.

The proposed actions will affect critical habitat. In the short term, temporary increase of sediments and turbidity and disturbance of instream and riparian habitat is expected. In the long term, a slow recovery process will occur as the plants mature. The NMFS does not expect that these actions will diminish the value of the habitat for survival of SONC coho salmon.

C. Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." The action area has been defined as

upstream to the edge of disturbance and extending downstream of the project to the confluence with Little Butte Creek. A wide variety of actions occur within the Rogue River basin, within which the action area is located. NMFS is not aware of any significant change in such non-Federal activities that are reasonably certain to occur. NMFS assumes that future private and State actions will continue at similar intensities as in recent years. Future COE/ODOT transportation projects are planned in the Rogue River watershed. Each of these projects will be reviewed through separate section 7 consultation processes and therefore are not considered cumulative effects.

VI. CONCLUSION

After reviewing the current status of Southern Oregon / Northern California coho salmon, the environmental baseline for the action area, the effects of the proposed Antelope Creek bridge scour repair project and the cumulative effects, it is the NMFS biological opinion that this project, as proposed, is not likely to jeopardize the continued existence of the Southern Oregon / Northern California coho salmon, and is not likely to destroy or adversely modify designated critical habitat. This conclusion is based on findings that the proposed action will use extensive revegetation and boulder clusters to restore function at the site.

VII. CONSERVATION RECOMMENDATIONS

Section 7 (a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of a proposed action on listed species, to minimize or avoid adverse modification of critical habitat, or to develop additional information. The NMFS does not have any conservation recommendations for this action.

VIII. REINITIATION OF CONSULTATION

This concludes formal consultation on the Antelope Creek bridge scour repair project. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and if: 1) The amount or extent of incidental take is exceeded; 2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; 3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion; or 4) a new species is listed or critical habitat is designated that may be affected by the action. In instances

where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

IX. REFERENCES

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion.

DEQ 1996. 303d List of Water Quality Limited Streams, as Required Under the Clean Water Act. Oregon Department of Environmental Quality (DEQ), Portland, Or. 1996. (www.deq.state.or.us/wq/303dlist/303dpage.htm).

DEQ 1998. Draft 303d List of Water Quality Limited Streams, as Required Under the Clean Water Act. Oregon Department of Environmental Quality (DEQ), Portland, Or. 1998. (www.deq.state.or.us/wq/303dlist/303dpage.htm).

DSL 1996. Essential Indigenous Salmonid Habitat, Designated Areas, (OAR 141-102-030). Oregon Division of State Lands. Portland, Or. 1996.

NMFS (National Marine Fisheries Service) 1996. Making Endangered Species Act determinations of effect for individual and grouped actions at the watershed scale. Habitat Conservation Program, Portland, Oregon.

ODFW 1996. Database -- Salmonid Distribution and Habitat Utilization, Arc/Info GIS coverages. Portland, Or. 1996. (rainbow.dfw.state.or.us/ftp/).

Weitkamp, L.A., T.C. Wainwright, G.J. Brant, G.B. Miller, D.J. Teel, R.G. Kope, and R.S. Waples. 1995. Status Review of Coho Salmon from Washington, Oregon, and California. U.S. Department of Commerce, NOAA Technical Memo. NMFS-NWFWC-24, 258 p.

X. INCIDENTAL TAKE STATEMENT

Sections 4 (d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

A. Amount or Extent of the Take

The NMFS anticipates that the action covered by this Opinion has more than a negligible likelihood of resulting in incidental take of SONC coho salmon because of detrimental effects from increased sediment levels (non-lethal) and the potential for direct incidental take during the construction of the cofferdam, excavation of the toe trench and grading of the streambank (lethal and non-lethal). There is also the potential for harm to the habitat by the placement of the riprap that could significantly impair behavioral patterns such as breeding, feeding, and sheltering. Effects of actions such as these are largely unquantifiable in the short-term, and are not expected to be measurable as long-term effects on coho habitat or population levels. Therefore, even though NMFS expects some low level incidental take to occur due to the actions covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species itself. In instances such as these, the NMFS designates the expected level of take as "unquantifiable." Based on the information in the biological report, NMFS anticipates that an unquantifiable amount of incidental take could occur as a result of the actions covered by this Opinion. The extent of the take is limited to the reach of Antelope Creek immediately adjacent to project disturbance.

B. Reasonable and Prudent Measures

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimizing take of the above species.

1. To minimize the amount and extent of incidental take from scour protection activities within and adjacent to Antelope Creek, measures shall be taken to limit the duration and extent of work in the riparian area, and to schedule such work when the fewest number of fish are expected to be present.
2. To minimize the amount and extent of incidental take from construction activities near the creek, effective erosion and pollution control measures shall be developed and implemented to minimize the movement of soils and sediment both into and within the river, and to stabilize bare soil over both the short-term and long-term.
3. To minimize the amount and extent of take from loss of instream habitat and to minimize impacts to critical habitat, measures shall be taken to avoid impacts to riparian and instream habitat, or where impacts are unavoidable, to replace lost riparian and instream function.
4. To ensure effectiveness of implementation of the reasonable and prudent measures, all erosion control measures and plantings for site restoration shall be monitored and evaluated both during and following construction.

C. Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, COE/ODOT must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To Implement Reasonable and Prudent Measure #1, above, the COE/ODOT shall be required to complete the following:
 - a. All work within Antelope Creek (below the two-year floodplain) will be done prior to September 30th to minimize impacts to migrating adult coho salmon. This includes work to excavation of the slope, placement of riprap and stabilizing the gas line and water line.
 - b. A cofferdam or similar type structure will be used while placing riprap within the two-year floodplain.
2. To Implement Reasonable and Prudent Measure #2, above, the COE/ODOT shall be required to complete the following:

All erosion control and pollution control measures included in the July, 2000, BA are included as terms and conditions of this consultation. The NMFS requires ODOT to give particular attention to the following measures:

- a. Vehicle maintenance, re-fueling of vehicles and storage of fuel shall be done at least 150 feet from the 2-year flood elevation or in an adequate fueling containment area.
 - b. At the end of each work shift, vehicles shall be stored greater than 150 feet (horizontal distance) from the 2-year flood elevation, or in an area approved by the Engineer.
 - c. The contractor shall develop an erosion and sediment control plan for this project. The plan may be developed and submitted in stages for each type of work required. Each type of work will not begin until the Engineer approves the erosion and sediment control plan. The minimum anticipated erosion and sediment control measures for the construction work shown on the plans include: seeding of disturbed slopes with the permanent seed mix, install straw wattles on disturbed slopes, construct check dams on the quarry bench access road, and maintain existing sediment detention ponds.
 - d. All erosion control devices will be inspected daily during project activities to ensure that they are working adequately. If these controls are not found to be working effectively, work crews will be mobilized to make immediate repairs to the erosion controls, or to install additional erosion controls as necessary during working and off-hours. Additional controls will be installed as necessary.
 - e. If soil erosion and sediment resulting from construction activities is not effectively controlled, the Engineer will limit the amount of disturbed area to that which can be adequately controlled.
3. To Implement Reasonable and Prudent Measure #3, above, the COE/ODOT shall be required to complete the following:
 - a. Boundaries of the clearing limits will be flagged by the Project Inspector. Ground will not be disturbed beyond the flagged boundary.
 - b. On-site and off-site plantings will be implemented as proposed.
4. To Implement Reasonable and Prudent Measure #4, above, the COE/ODOT shall be required to complete the following:
 - a. All significant riparian replant areas will be monitored for a minimum 3-year period to insure the following:

- i. Finished grade slopes and elevations will perform the appropriate role for which they were designed.
 - ii. Plantings are performing correctly and have an adequate success rate. An adequate success rate is 90%.
- b. Failed plantings and structures will be replaced, if replacement would potentially succeed. If not, plantings at another appropriate locations will be done.
- c. By December 31 of each year, ODOT shall submit to NMFS (Oregon Branch) a monitoring report that addresses the success of erosion control measures and of the plantings. At a minimum, the monitoring report must include photographs of the erosion control measures and plantings, with a short narrative that addresses riparian function. Monitoring reports will be submitted to:

Oregon Branch Chief
National Marine Fisheries Service
525 NE Oregon Street, #500
Portland, Oregon 97232-2737

- d. If a dead, sick or injured SONC coho salmon is located, initial notification must be made to Nancy Munn, Ph.D., NMFS, telephone: (503) 231-6269. Care will be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured species or preservation of biological material from a dead animal, the finder has the responsibility to carry out instruction provided by Dr. Munn to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.